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ABSTRACT

More than 5,000 reading miscues by 96 eighth and ninth graders were analyzed in a study designed to define specific relationships among cue use and to extend research based on Kenneth Goodman's psycholinguistic theory to the secondary level. The students read two easy and two difficult passages orally and answered questions based on them. Each miscue was rated for the achievement level of the subject based on total comprehension score; comprehension of the passage in which the miscue occurred; the graphic, grammatical, and semantic match of the miscue to text; and whether it was corrected. The results showed that students who disregarded cues were poor readers and did not comprehend, and that making distinctions across levels of grammar and graphics increased their comprehension. In addition, good readers who did not comprehend corrected more meaning-changing responses in partly grammatical structures, and more poor grammatical responses in sentences that retained sentence meaning. This indicates that information on one dimension helped readers correct information on another. When good readers minimized attention to grammatical and graphic disparities and focused on retaining sentence meaning, they comprehended material. The findings suggest that Goodman's theory can be applied successfully to the reading behavior of secondary students. (FL)

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(Note to ed.- may drop Figs. 1-6 and references to them in text.
Renumber Figs. 7,8, and 9 as 1,2, and 3.)

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Reading: Cue Use, Achievement and Comprehension in an Adolescent Population*

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This study is an analysis of the relationship between how students use graphic, grammatical and semantic cues in text, how well they achieve and how well they comprehend in reading. An ANOVA-like design allowed for testing of all possible relationships among these five factors (Forthofer, Starmer and Grizzle, 1971; Feinberg, 1978). Like a previous study (Otto, 1977) a central purpose of this study was to extend research based on Goodman's Psycholinguistic Theory (Goodman, 1971) to the secondary level and to define specific relationships among cue use. Such relationships have not been identified to date.

*Based on Jean A. Otto, Reading: Cue Utilization, Achievement and Comprehension in an Adolescent Population. Dissertation Abstracts, 38(6), 1978.

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Procedure

5,180 miscues by 96 eighth and ninth graders who read four passages orally and answered questions based on them were analyzed. Students came from seven schools in two states. Two easy and two difficult passages and passage-dependent questions (Tuinman, 1973) were adapted from the California Achievement Tests (Tiegs and Clark, 1970). Each oral reading miscue was rated for the achievement level of the subject (high or low) based on total comprehension score (A), comprehension by the student (high or low) of the passage in which it occurred (C), its graphic (R), grammatical (G) and semantic (S) match to text, and whether or not it was corrected (the dependent variable). Cue use is indicated by change in the probability of correction with change in degree of match to text word.

Results

Table 1 lists all significant sources of variation in student correction of miscues.

Insert Table 1 about here

Use of Cues Regardless of Student Achievement or Comprehension

The first three sources reflect how cues are used by all students.

Insert Figures 1 and 2 about here

Slightly more graphically discrepant miscues are corrected, and miscues which are grammatical up to the point of the miscue (partly grammatical) are far more likely to be corrected than grammatical or ungrammatical responses. The GS interaction reflects the fact that students are more likely to correct poor grammar when the meaning of the sentence is retained and more likely to correct poor semantics when their miscue is grammatical.

Good Readers vs. Poor Readers

The next three sources (A, AS, AGS) indicate how good readers use of cues is different from that of poor readers. Not only do good readers correct overall more miscues, but they use semantics as a cue while poor readers do not, correcting more miscues which have changed sentence meaning. Further, the relationship of grammar and semantics described above primarily reflects good readers' tendency to correct more miscues which change sentence meaning when they have a better grammatical match. It is use of grammar and semantics which distinguishes the good reader from the poor reader, regardless of how well they comprehend text.

Insert Figures 3 and 4 about here

Comprehending vs. Not Comprehending

The next two sources (C and CG) reflect that not only have students who understood text corrected more miscues, but they have been much more likely to correct poor grammatical constructions. Use of grammar distinguishes students who understood text from those who did not, regardless of how well overall they read.

Insert Figure 5 about here

Achievement/Comprehension Groups

The last sources (ACR, ACRG, ACRS, and ACRGS) indicate use of cues which varied among four groups: good readers who understood what they read, good readers who did not, poor readers who understood what they read, and poor readers who did not. Readers who do not use graphic cues neither comprehend not achieve well in this reading. The best readers are most likely to correct both poor and moderate graphic matches to text while the other two groups are most likely to correct only moderate matches to text

word. It seems that correction of only moderate graphic match miscues can lead to comprehension of easier material (by poor readers), but not to the more difficult material (by good readers).

Insert Figure 6 about here

When poor readers use graphics only in partly grammatical structures and show little difference in the way they treat grammatical and ungrammatical responses they do not comprehend materials. An increased use of grammar and correction of moderate graphic matches is associated with better comprehension for this group. When good readers minimize their use of graphic distinctions and increase their use of grammar they comprehend material. Thus, the process of comprehending material is different for good and poor readers (Figure 7).

Insert Figure 7 about here

When semantic match is specified, it is primarily increased attention to graphic variations that is associated with comprehension for poor readers. Good readers, while still attending somewhat to graphic variations, primarily increase their attention to semantic discrepancies. The process of comprehending in good readers, then, appears to be aimed at producing meaningful responses somewhat regardless of graphic match to text. Poor readers show primary attention to graphics relative to semantics (Fig. 8).

Insert Figure 8 about here

As the last figure shows, simultaneous consideration of all three language cues must be made to fully distinguish among the four groups.

Insert Figure 9 about here

As would be expected, students who disregard cues are poor readers and do not comprehend. Making increased distinctions across levels of

grammar and graphics increases their comprehension. Poor readers never consistently work toward retaining the meaning of the sentence. Good readers who do not comprehend have corrected more meaning changing responses in partly grammatical structures, and more poor grammatical responses in sentences which have retained sentence meaning. Information on one dimension appears to help them correct information on another dimension. When these readers minimize attention to both grammatical and graphic disparaties and focus somewhat more on retaining sentence meaning they comprehend material.

The many interrelationships among cue use described in general here which are significantly related to student achievement and/or comprehension indicates that it may be a more predominant use of semantics and/or grammar and increasing disregard for graphic accuracy which is associated with better reading.

Conclusions

Applying Goodman's theory to the reading behavior of secondary students is fruitful in defining what distinguishes reading and reader success. Several aspects of the theory receive support here:

1. Reading is a predictive process.

   These readers generated many reading responses which were related to, but not identical with, the text. Nearly 40% of all groups miscues were grammatical and retained the sentence meaning (before correction). Clearly, readers were using some, but not all, of the information available to them. They were predicting.

2. Reading is a whole language process.

   Use of cues is not completely independent. Not only are all cues used, but the significance of interactions indicates that use of any one cue is related to other cues. Use of graphics, grammar and semantics is interdependent.

3. Good reading is primarily a process of gaining meaning not primarily being accurate.

   Better readers seem to decrease attention to graphics over grammar and/or semantics when they comprehend. In correcting responses they are not focusing so much on making a visual match, but a language/meaning match.

This picture of micro-behaviors in reading appears to be at least consistent with macro-analyses of reading, e.g., discourse analysis. If we assume that when readers do attempt to form a coherent structure of text meaning, text is better recalled and/or comprehended, what kind of micro-behaviors would we expect to observe? In the process of reading text subjects would have to focus on producing a cohesive version for incorporation into the major structures they are building. This would lead to more primary emphasis given to correction of errors not consistent with text meaning, and ignoring responses which retain cohesion (meaningfulness). This study indicates that this is the behavior that occurs.

References

Feinberg, S. The Analysis of Cross-classified categorical data. Cambridge, Massachusetts: The MIT Press, 1978.

Forthofer, R., Starmer, C. & Grizzle, J. A program for the analysis of categorical data by linear models. Journal of Biomedical Systems, 1971, 2, 3-48.

Goodman, K. Reading: A psycholinguistic guessing game. In H. Singer and R. Ruddell (Eds.) Theoretical Models and processes of reading. Newark, Delaware: International Reading Association, 1971.

Otto, J. Reading cue utilization by low-achieving college freshmen. Journal of Reading Behavior, 1977, 9, 71-84.

Otto, J. Reading: Cue utilization, achievement and comprehension in an adolescent population. Dissertation Abstracts, 38(6), 1978.

Tiegs, E. and Clark, W. California Achievement Tests. Monterey, California: CTB/McGraw-Hill, 1970.

Tuinman, J. Determining the passage dependency of comprehenion questions in five major tests. Reading Research Quarterly, 1973, 9, 206-223.

Table 1

Sources of Variation in the Probability of Correction of Miscues

Source	x^2 (p)	df
Graphics (R)	17.4 (.0002)	2
Grammar (G)	82.8 (.0000)	2
Grammar x Semantics (GS)	16.9 (.0002)	2
Achievement (A)	7.7 (.006)	1
AS	12.6 (.0004)	1
AGS	7.7 (.02)	2
Comprehension (C)	23.2 (.0000)	1
CG	7.4 (.025)	2
ACR	22.8 (0000)	2
ACRG	27.2 (0000)	4
ACRS	6.3 (.043)	2
ACRGS	15.7 (.003)	4
Error	46.7 (.49)	46

Figure 1

The Independent Use of Graphics and Grammar
in Correction of Miscues

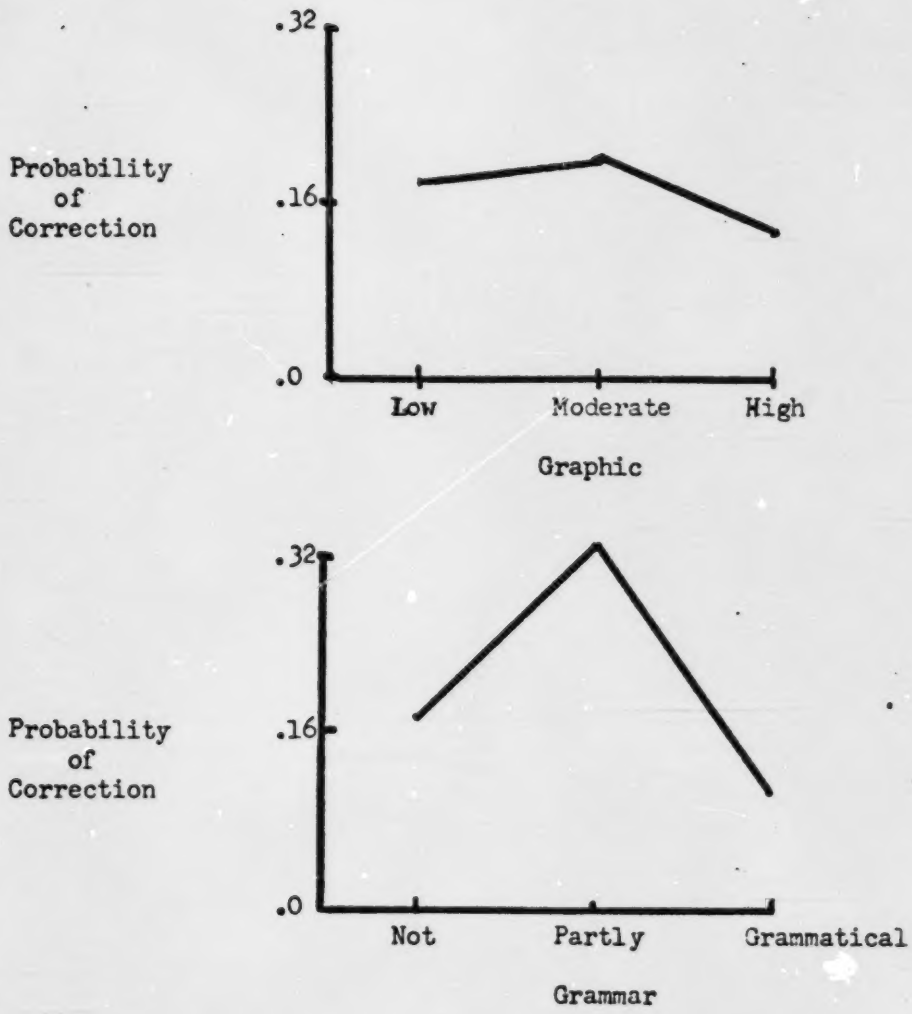


Figure 2

The Interaction of Grammar and Semantics
in Correction of Miscues

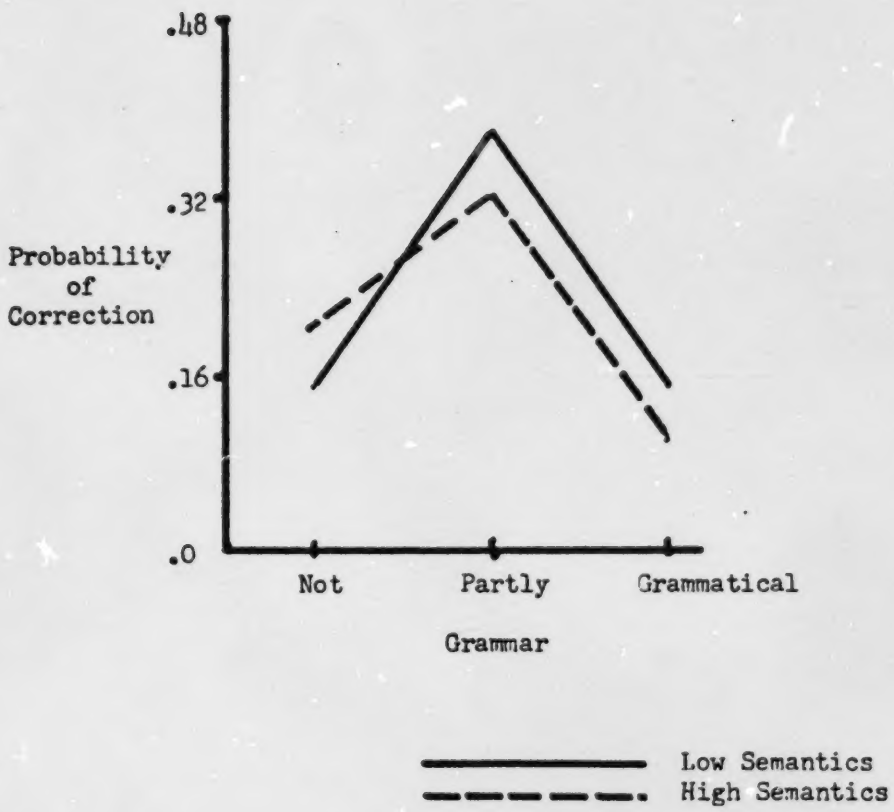


Figure 3

The Interaction of Achievement and Semantics in the Correction of Miscues

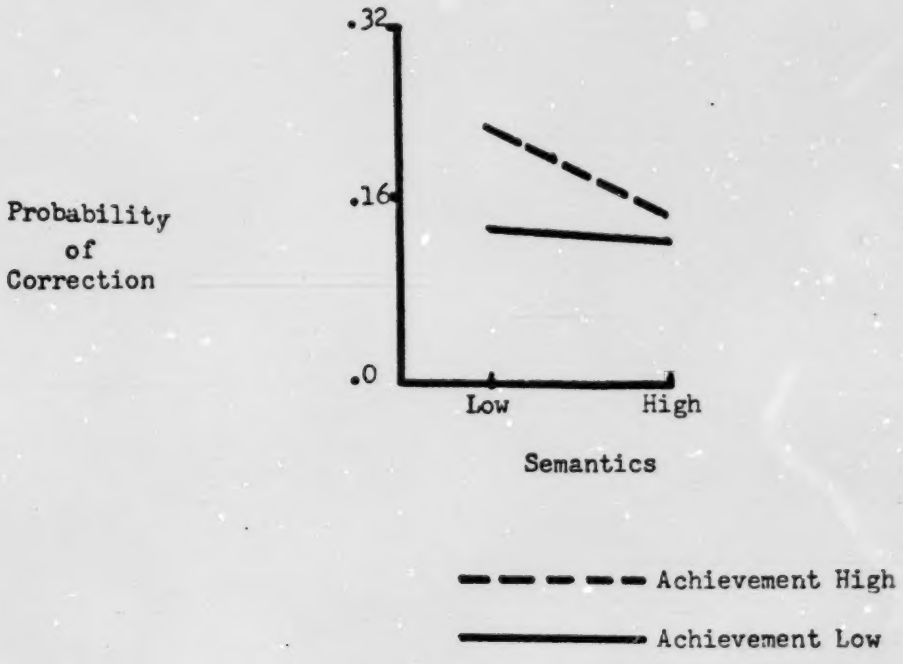


Figure 4

The Interaction of Achievement with Grammar and Semantics in the Correction of Miscues

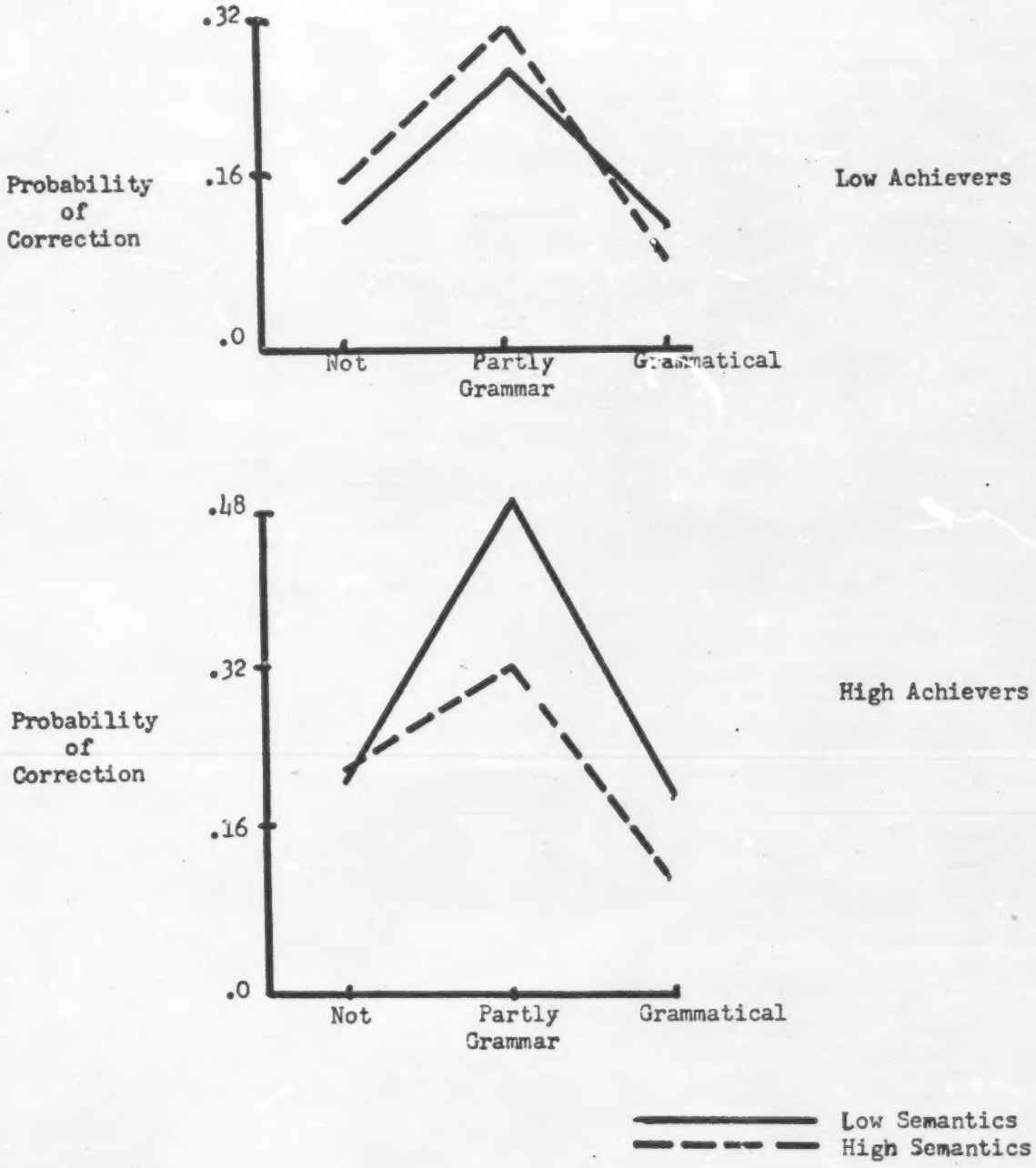


Figure 5

Use of Grammar and Comprehension

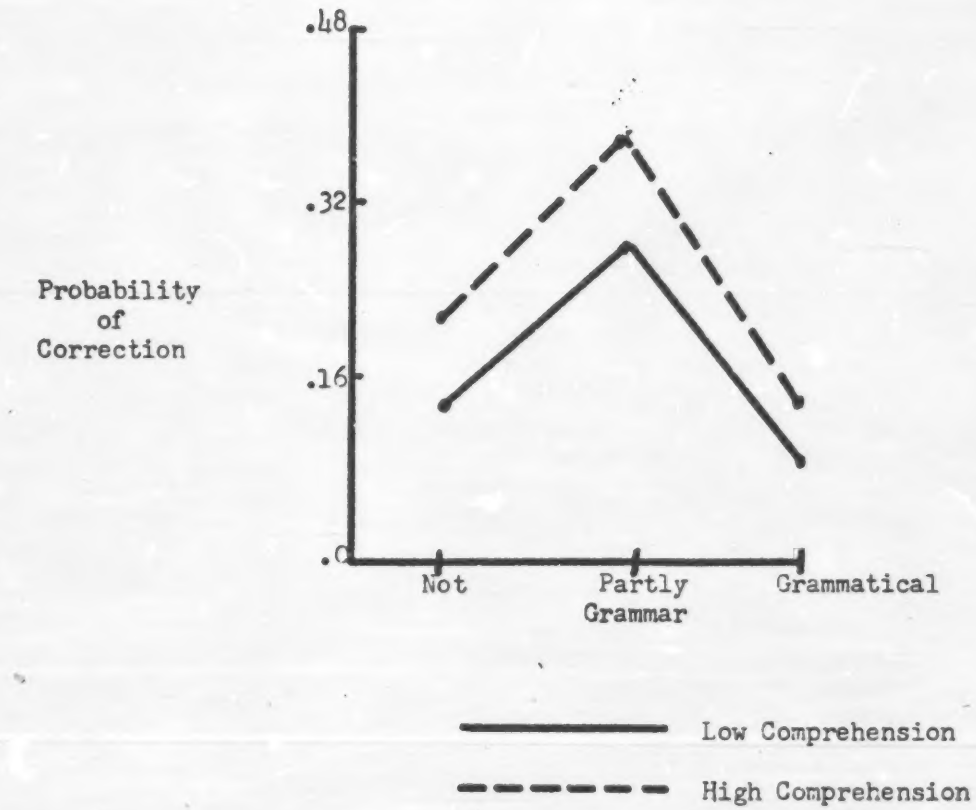
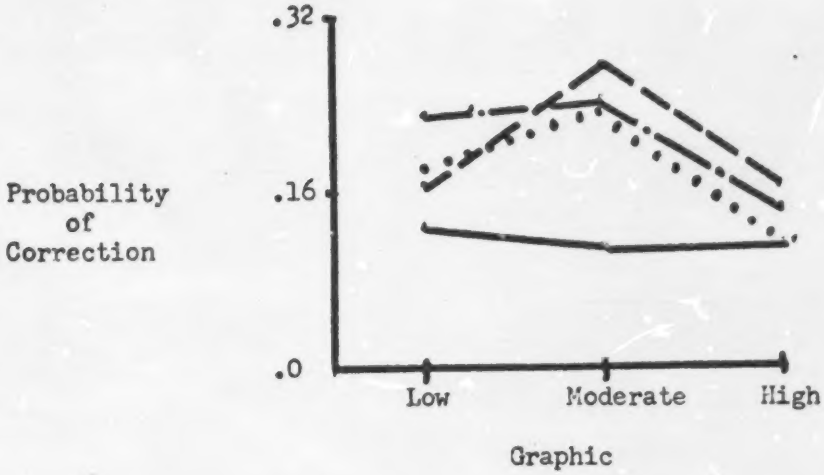


Figure 6

Use of Graphics and
Achievement/Comprehension



Achievement High, Comprehension High

Achievement High, Comprehension Low

Achievement Low, Comprehension High

Achievement Low, Comprehension Low

Figure 7
Graphic/Grammar Cue Use and Achievement/Comprehension

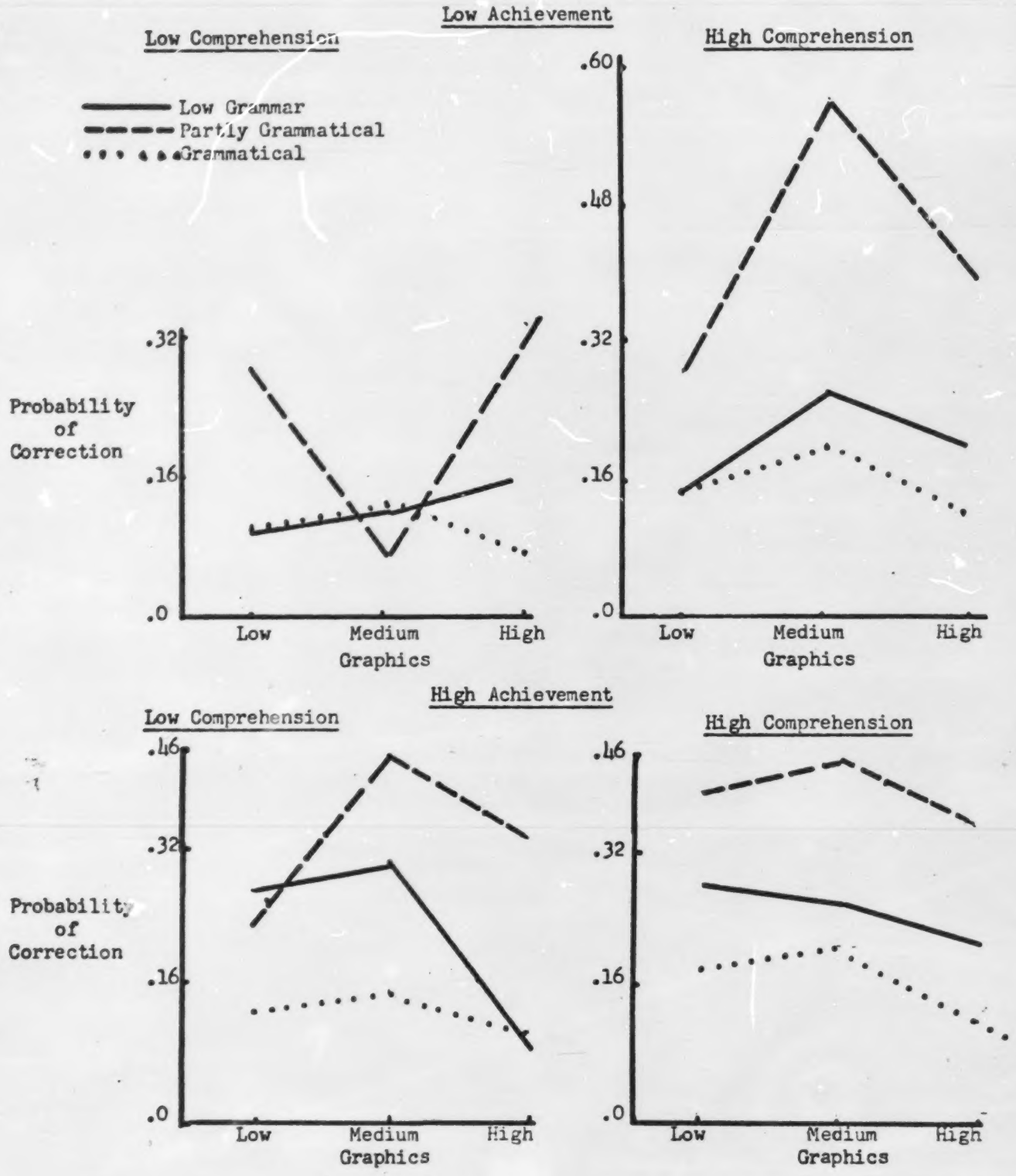


Figure 8
Graphic/Semantic Cue Use and Achievement/Comprehension

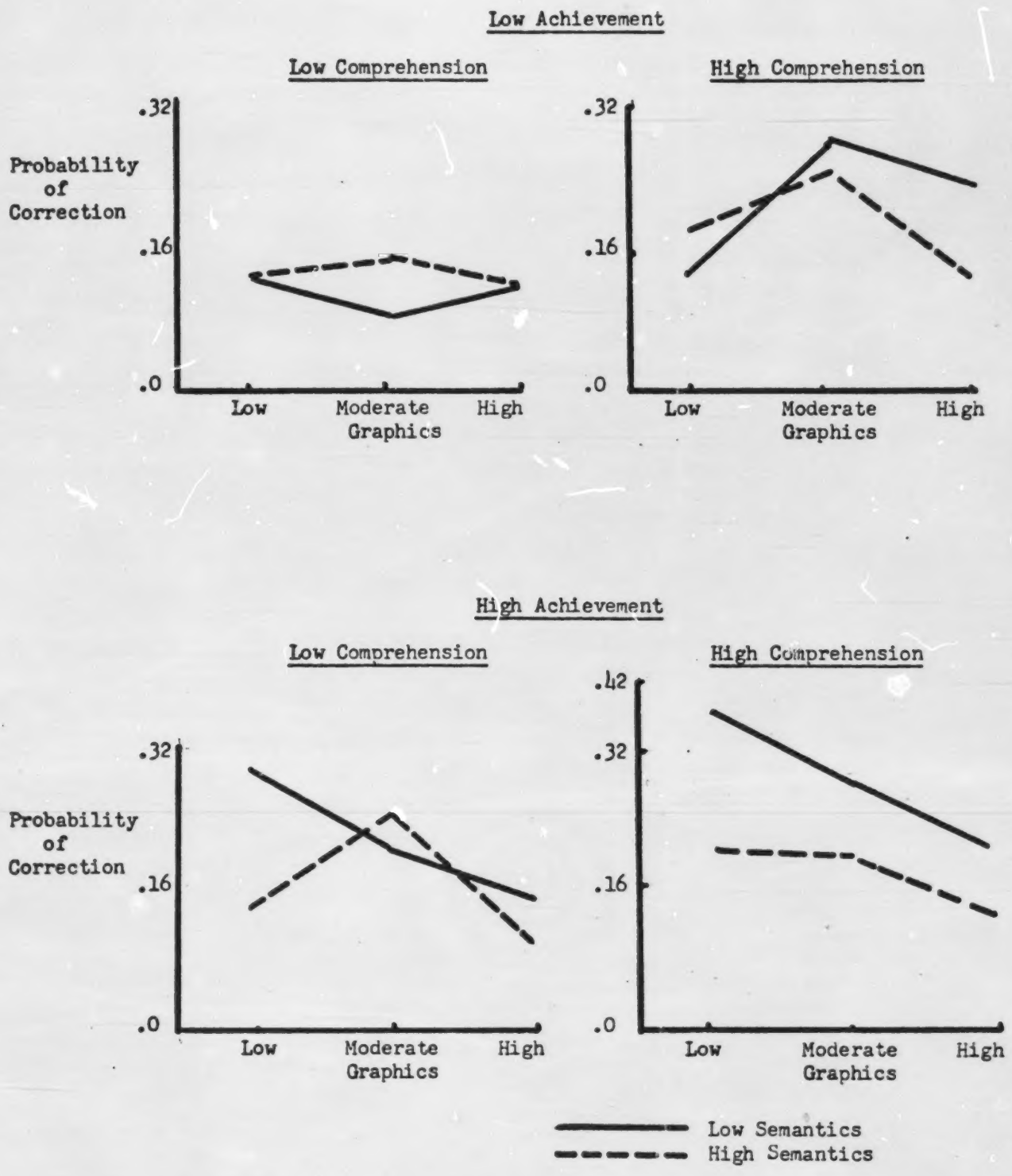


Figure 9 (Part 1)
The Interaction in Cue Use for Achievement/Comprehension

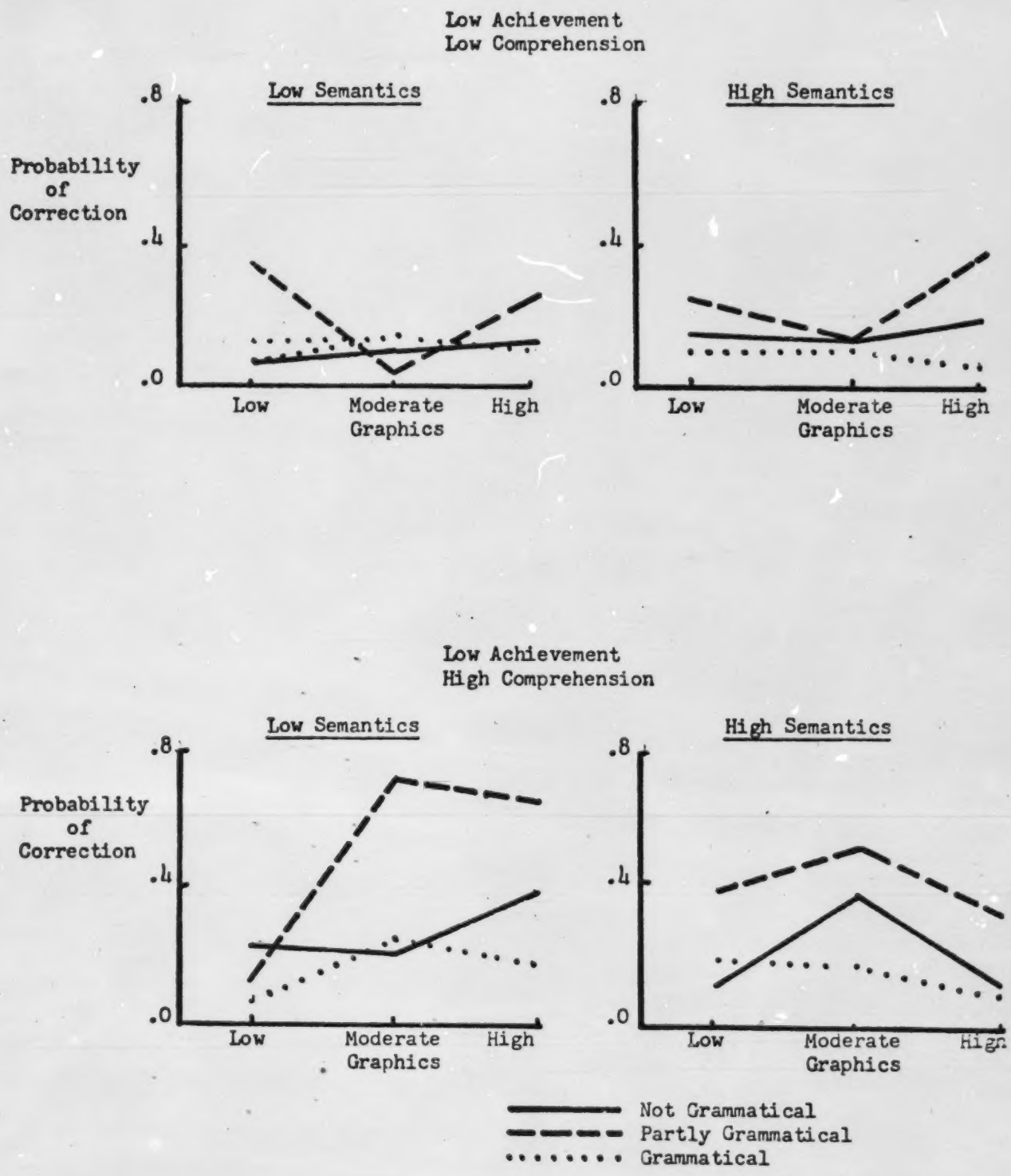


Figure 9 (Part 2)
The Interaction in Cue Use for Achievement/Comprehension